ANTECEDENTS OF SMOKING ONSET IN CHILDREN AND ADOLESCENTS: A REVIEW (3rd ed)

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Abstract

This report reviews and summarizes research on the social and psychological predictors of smoking initiation during early adolescence. Large scale multivariate analyses have consistently identified three main factors which influence smoking onset: parents' and older siblings' smoking, peer influences, and a deviance-prone personality in the individual. A recent line of inquiry views substance use (including tobacco) in the context of coping mechanisms which are used to deal with stressful life circumstances.

Advertising is an ingredient of the overall social context in which smoking occurs, and has often been identified as a primary cause of smoking initiation. The empirical evidence concerning advertising's potential influence is sparse, and in any case does not implicate it as a significant contributor to smoking onset. It is concluded that smoking has a complex etiology in which advertising's role is relatively negligible.

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developmental framework within which issues of anticipation, experimentation, and regular smoking could be investigated. They proposed a four-stage developmental history for the individual smoker, comprised of: preparation, initiation, becoming a smoker, and maintenance of smoking. Among the important benefits of this approach are the recognition of a preparatory stage wherein a number of factors may predispose some youths to try smoking, and the notion that different stages may be influenced by different sorts of psychological and/or environmental antecedents. Flay, d'Avernas, Best, Kersell, and Ryan (1983) outlined a similar approach.

Nearly 90% of all youngsters try at least one cigarette at one time or another. Some continue to experiment, while others do not. Salber, Freeman, and Abelin (1968) suggested that about 80% of those trying four or more cigarettes subsequently became regular smokers, although these data are now almost 20 years out of date. Even amongst those who do experiment for awhile, not all become regular smokers. Our current understanding of the smoking process is consistent with Wohlford and Giamonna's (1969) conclusions that smoking initiation "... appears to be neither a simple, abrupt all-or-nothing occurrence, nor a gradual smoothly accelerating process .... Whether or not an adolescent smokes probably involves a complex matrix of his personal dispositions and social factors..." (p. 551). The authors recommended longitudinal studies to help

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disentangle the cause-effect questions which result from cross sectional designs.

The dispositions and social factors posited by Wohlford and Giamonna (1969) are better understood today due mainly to improvements in conceptual clarity, and to an increase in the number of longitudinal studies. The latter represent an important advantage over cross-sectional investigations which compare smokers with nonsmokers because the cross sectional approach confounds the causes of smoking onset with its effects. Once a teenager begins to smoke, smoking status may affect perceptions and attitudes about smoking, not to mention retrospective accounts of how the habit was acquired. Another methodological improvement involves a refinement of the notion of "risk". Kozlowski and Harford (1976) pointed out that even when psychosocial influences are optimal for encouraging smoking, a substantial number of youths fail to become smokers. Do they simply resist social pressures, or do they try one cigarette and dislike it so much that they avoid smoking in the future? In the latter instance, non-use may be determined, in part, by biological factors, thus it is important to distinguish between "never users" and "triers" (i.e., those who have smoked at least once). This distinction has been recognized in most of the recent research.

The following review describes current knowledge about some of the psychological and social

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antecedents of smoking. Other reviews have been provided by Evans, Henderson, Hill and Raines (1979), Gritz and Brunswick (1980), and Reeder (1977). This examination of the literature focuses on, but is not confined to, relatively recent studies. Special importance is afforded studies utilizing longitudinal, multivariate designs on large samples. The subheadings represent various categories of factors which have been frequently investigated and/or shown to correlate with smoking behavior. Media effects have not been widely studied, nor is there much evidence of their influence in the initiation of smoking, however because of the current controversy concerning the potential impact of advertising, media effects are treated as a separate category of antecedent influences.

The factors most often studied as correlates of smoking onset will be reviewed in the following three categories: (1) social factors, including parental smoking and attitudes, peer influences, and changing sex role orientation; (2) individual characteristics, including control orientation, educational achievement, rebelliousness, self image, and multiple drug use; and (3) media effects.

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SOCIAL FACTORS

Parental smoking patterns and attitudes

Parental and peer smoking have consistently been found to be highly associated with youthful smoking. Indeed, they are implicated as important contributors to drug use in general (Gorsuch & Butler, 1976; Kandel, 1980). According to Flay et al. (1983) these factors "vie for the primary predictive position". In their study of male Harvard alumni, McArthur, Waldron, and Dickinson (1958) identified the social milieu -- the subculture and the family -- as important determinants of whether and when men are oriented to the habit. Horn, Courts, Taylor, and Solomon (1959) found a high correspondence between high school students' smoking and that of their parents' and older siblings'. When both parents smoked, 40% of the students smoked; if neither parent smoked, only 23% of the students smoked. Salber and her associates have also shown that the likelihood of smoking increases as a function of parental smoking (Salber & McMahon, 1961), and of older siblings' smoking (Salber, McMahon, & Harrison, 1963). Clausen (1968) reports a parental effect for girls only, but his study was based on a relatively small sample (n = 123). Palmer (1970) questioned over 3 thousand high school students about their smoking habits. Only six per cent of smoking boys had

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nonsmoking fathers. When neither parent smoked, smoking was rare for both males and females.

With few exceptions (Hirschman, Leventhal, & Glynn, 1984; Kahn & Edwards, 1970; McAlister, Krosnick, & Milburn, 1984), subsequent studies have confirmed the importance of parental smoking behavior as a predictor of adolescent smoking (Baugh, Hunter, Webber, & Brenson, 1982; Borland & Rudolph, 1975; Chassin, Presson, & Sherman, 1984; Chassin, Presson, Sherman, Montello, & McGrew, 1986; Friedman, Lichenstein, & Biglan, 1985; Kelson, Pullela, & Otterland, 1975; Krosnick & Judd, 1982; Levitt & Edwards, 1970; Spielberger, 1985; U. S. Public Health Service, 1976). British researchers have identified a comparably strong link between parental smoking and children's tobacco use (Banks, Bewley, Bland, Dean, & Pollard, 1978; Banks, Bewley, & Bland, 1981; Bewley, Bland, & Harris, 1974; Cartwright & Thomson, 1960). Brown, Cherry, and Forbes (1986) obtained data from 105,788 Canadian school children in grades 3 - 13, using a probability sample. The highest percentages of current smokers, for both sexes, were observed when both parents smoked.

According to Pflaum (1965) parental influences operate in a sex-linked fashion with boys following their father's example, and girls their mother's, however he provides no evidence for this conclusion. Ahlgren, Norem, Hochhauser, and Garvin (1982) reported a slight but nonsignificant same-sex link

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in their study of fifth and sixth grade smokers. Baer and Katkin (1971), studying college students, found that sons were least likely to believe they smoked too much if only their fathers smoked, while daughters were least likely to do so if only their mothers smoked. Gottlieb (1982), studying undergraduate women in the Boston area, found that mothers' smoking was significantly related to their daughters', while the fathers' was not. In a small sample of college undergraduates, Wohlford (1970) reported a relationship between sons' and fathers' smoking patterns, but found no same-sex link between daughters and mothers. Salber and McMahon's (1961) study of high school students revealed no same-sex link for either boys or girls. Even though both Flay et al. (1983) and Hirschman et al. (1984) interpreted Kelson et al.'s (1975) study as having demonstrated that smoking by the same-sex parent exerts a strong influence on children's smoking, Kelson et al.'s data do not reveal any evidence of a differential effect of fathers' or mothers' smoking on their children, nor do the authors report one. Similarly, Spielberger (1986) reported no evidence of same-sex parental modeling. At the moment, the available evidence is equivocal with respect to the issue of sex-linked parental influences on the smoking of children.

Rather than looking at actual smoking behavior, some studies have investigated the correlates of adolescents' intentions to smoke. Chassin et al. (1981) found no consistent

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relationship between parental smoking and subjects' intentions to smoke. Amongst high school nonsmokers, those with parents who smoked were less likely to intend to smoke. Parental smoking was, however, related to students' actual smoking status, with no evidence for cross-sex or same-sex modeling. Similarly, older siblings' smoking was more strongly predictive of actual smoking than it was of intentions to smoke. Presson et al. (1984) found that peer and family smoking were better predictors of smoking intentions for girls than for boys. Also, parental and sibling smoking were related to children's smoking intentions for their midwest sample of subjects, but not for their southwest sample. The authors proposed that the more deviant the behavior is, the more salient and influential a family model may be. Since smoking is more generally acceptable in the southwest, there is a wider variety of smoking models available, and thus the effect of family models is weakened.

Predicting smoking intentions is of little utility unless these intentions, in turn, predict actual smoking. Chassin et al. (1984) found that behavioral intentions were good predictors of future smoking in their midwest sample, although predictions were stronger for the transition from experimenter to regular smoker, than they were for the transition from nonsmoker to 'trier'. In other words, once someone smokes, even sporadically, their intentions to continue to smoke in the future are more accurate predictors than are the stated

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intentions of a nonsmoker. Biglan, Weissman, and Severson (1985) reported that rated intentions to smoke were a weak predictor of subsequent smoking for middleschoolers (1.8% of the variance), and of no predictive value for highschoolers.

Friedman et al. (1985) attach more importance to the immediate social situations surrounding smoking initiation (proximal factors) than they do to attitudinal or intentional precursors (distal factors). They proposed that "...attitudes and intentions that are favorable to smoking are unlikely to determine smoking in the absence of propitious social situations" (p. 10). There is little doubt that teenagers' attitudes and intentions are related to their actual smoking behavior, however it remains to be seen whether and to what degree these relationships are causal. Moreover, there is little evidence that intentions are themselves the direct result of parental influence.

A few studies have looked at the association between parental attitudes and teens' smoking (Allegrante, O'Rourke, & Tuncalp, 1977; Chassin et al., 1984; Kahn & Edwards, 1970; Palmer, 1970; Vellar, 1979). In general these data are difficult to interpret because parents rarely encourage their children to smoke; parental attitudes tend to be negative, regardless of a child's smoking status. Chassin et al. (1984) found that nonsmokers who became 'triers' had parents who were relatively more accepting of smoking than did nonsmokers who remained nonsmokers. Biglan and Lichenstein (1984)

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described research which showed that teens' expectations of parental anger at their smoking acted as a deterrent to adolescents' increasing their smoking rate. Vellar (1979), reporting Norwegian data, stated that parental prohibition of smoking was not affected by the parents' smoking status. Thus, in Norway parents can apparently get away with a "do as I say, not as I do" approach, at least with respect to smoking. In contrast, the North American data show clearly that parental smoking habits correlate highly with children's smoking, in spite of consistently unfavorable attitudes towards teens' smoking on the part of their parents. There may be pronounced differences in child rearing practices and/or the social acceptability of smoking which account for this dramatic cultural disparity.

Several investigators have looked at siblings' smoking status as a predictor of smoking amongst younger siblings. Sometimes older siblings have been subsumed under a 'family models' factor (Presson et al., 1984); at other times siblings' influence has been independently studied (McCaul, Glasgow, O'Neill, Freeborn, and Rump, 1982). As with parental smoking, siblings' smoking has been inconsistently linked to adolescent intentions to smoke (Chassin et al., 1981; Presson et al., 1984), but strongly associated with actual smoking (Banks et al., 1978; 1981; Bewley et al., 1974; Chassin, Presson, & Sherman, 1984; Hirschman et al., 1984; McCaul et al., 1982; McAlister et al., 1984). Palmer's (1970) data suggested that

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older sisters who smoke may be particularly potent models for their younger sisters. Similarly, Jacobs, Jerome, Sayers, Spielberger, and Weinberg (1988) found that older sister's smoking was strongly associated with smoking in their sample of eight and tenth grade students.

Chassin, Presson, Sherman, Corty, and Olshavsky (1984) found that smoking among older siblings was an extremely strong predictor of transition from nonsmoker to smoker for grade seven and eight children, especially girls. In Brown et al.'s (1986) Canadian sample, the highest smoking rates were amongst children who had siblings of both sexes who smoked. For this group, the smoking rate was about twice as high as the overall rate. Respondents were more likely to be smokers when siblings of the same sex smoked, with the effect more pronounced for girls than boys. Mittelmark et al. (1987) found that siblings' influence on others' experimentation was strongest on females and younger children. Spielberger (1986) has also reported that older sisters have a greater impact on their younger sisters than on the smoking behavior of younger brothers; older brothers influenced younger siblings of both sexes to the same degree. Needle et al. (1986) reported that older siblings were an important influence on general drug-using behavior, independent of peer and parental modeling effects.

Biglan and Lichenstein (1984) and Friedman et al. (1985) have shown that siblings are much more likely than

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parents to be present at initial smoking experiences, although Bewley et al. (1974) found that 11% of their sample of British primary school boys had been given their first cigarette by their parents! Baugh et al. (1982) reported that among children who were given their first cigarette before the age of 12, 25% smoked them with a family member.

While it is clear that both parents and siblings play an influential part in the development of both predispositions to smoke, and actual smoking, it may be that their respective roles in the onset process are quite different. Siblings are much more likely than parents to be physically present at initial smoking situations. They may also provide the cigarette, plus a greater degree of explicit endorsement of smoking than would parents. Parents, on the other hand, have been salient models for a much longer time period than have siblings. In this sense, parental influences could be construed as distal -- preparing young people to experiment -- whereas siblings exert a more proximal influence -- perhaps providing the occasion, the encouragement, and sometimes the actual cigarette. Biglan and Lichenstein (1984) speculated that sibling influence may be transitory, in the sense that while siblings may be successful in prompting young people to smoke in the first place, smoking is less likely to continue without a supportive cohort of peers.

Wake (1979) has provided an account of parental modeling as it applies to smoking which is exemplary in

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general use of chemical substances as a means of coping.

Peer Influences

Many studies, some of which were cited in the previous section on parental influences, show a strong relationship between peers' and friends' smoking and the smoking rates of teenagers. Cartwright and Thomson (1960) questioned over 3 thousand Edinburgh secondary school-children, and found that one third of the smokers obtained at least some of their cigarettes from their friends. Palmer (1970) found that same-sex peers were by far the most frequent source of encouragement for both male and female experimental smokers. Levitt and Edwards (1970) assigned "paramount importance" to the peer group as a predictor of smoking, relative to parental smoking models. In a huge sample of schoolchildren from grades 5 through 12, peer influence was the most frequently stated "reason for smoking" amongst the social influences mentioned in Levitt's (1971) study. Rudolph and Borland (1976) found that over 80% of the high school smokers (of both sexes) in their Pennsylvania sample, had best friends who were also smokers.

According to Mettlin (1976), most smokers have a network of 'significant others', who define the importance of smoking and also act as models of the behavior. Gottlieb (1982)

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